

Abstract of the Disclosure

5 A method and apparatus for efficient filter structure for an enhanced operation of an
ADSL-DMT modem on a subscriber loop with an environment consisting of ISDN
interference. The method performs equalization of the channel by impulse response
shortening and at the same time rejecting interference signals exhibiting cyclostationary
properties. The method and apparatus for reducing the crosstalk involves a frequency-
10 shifted versions of the received signal being filtered through frequency-shifted adaptive
filters in the appropriate branches, and providing a joint time domain equalizer/crosstalk
canceller to perform equalization of the channel and crosstalk cancellation in one instance
and a separate crosstalk canceller to cancel crosstalk plus a time domain equalizer to
equalize the channel. Downsampling the signal outputs of both the combined crosstalk
15 equalizer and the frequency-shifted adaptive filters to reduce sampling rate; and
subtracting the outputs of the combined crosstalk equalizer and the frequency-shifted
adaptive filters to remove the cyclostationary interferer.